

WHAT IS CLAIMED IS:

1. A toner comprising toner particles and a fluidity-imparting agent, said toner particles having an average circularity of 0.93 to 0.97, with a residue of said toner being in an amount of 10 mg or less when 100 g of said toner is sieved with a 500-mesh sieve, said toner being for use in an electrophotographic image formation method using an intermediate image transfer method which comprises (1) a first image transfer step of transferring a toner image formed on a toner image bearing member from said toner image bearing member to an endless-shaped intermediate image transfer member so as to form a toner image thereon, and (2) a second image transfer step of transferring said toner image from said intermediate image transfer member to an image transfer material.

SUB 2. The toner as claimed in Claim 1, wherein said toner is one toner in a set of toners for use in a full-color electrophotography, which comprises at least a yellow toner, a magenta toner, and a cyan toner.

3. The toner as claimed in Claim 1, wherein said

toner exhibits a charge rise-up ratio Z of 70% or more,
which is calculated from formula (1):

$$Z(\%) = (Q20/Q600) \times 100 \quad (1)$$

wherein Q600 is a quantity of charge of said toner when said toner and a carrier are mixed and stirred for 10 minutes, with a concentration ratio of said toner in the mixture of said toner and said carrier being set at 5 wt.% or less at normal temperature and normal humidity, and Q20 is a quantity of charge of said toner when said toner is mixed with said carrier for 20 seconds under the same conditions as for said Q600.

4. The toner as claimed in Claim 1, wherein said fluidity-imparting agent comprises hydrophobic silica particles and hydrophobic titanium oxide particles.

5. The toner as claimed in Claim 1, wherein said fluidity-imparting agent has an average particle diameter of 0.05 μm or less.

6. The toner as claimed in Claim 1, wherein said fluidity-imparting agent comprises hydrophobic silica particles with an average particle diameter of 0.05 μm or less in an amount of 0.3 to 1.5 wt.%, and hydrophobic titanium oxide particles with an average particle diameter of 0.05 μm or less in an amount of 0.3 to 1.5 wt.%.

7. The toner as claimed in Claim 1, wherein said toner has a volume mean diameter of 9 μm or less.

8. The toner as claimed in Claim 7, wherein said toner comprises toner particles with a particle size of 5 μm or less in an amount of 20% or less in terms of the percentage of the number of said toner particles contained therein.

9. A full-color image formation method for forming full-color images, using a toner comprising toner particles and a fluidity-imparting agent, said toner particles having an average circularity of 0.93 to 0.97, with a residue of said toner being in an amount of 10 mg

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or less when 100 g of said toner is sieved with a 500-mesh sieve, said full-color electrophotographic image formation method using an intermediate image transfer method comprising (1) a first image transfer step of repeating a plurality of times the transfer of a toner image formed on a toner image bearing member successively from said toner image bearing member to an endless-shaped intermediate image transfer member so as to form a superimposed toner image, and (2) a second image transfer step of transferring said superimposed toner image en bloc from said intermediate image transfer member to an image transfer material.

10. The full-color image formation method as claimed in Claim 9, wherein said toner is one toner in a set of toners comprising at least a yellow toner, a magenta toner, and a cyan toner.

11. The full-color image formation method as claimed in Claim 9, wherein said toner exhibits a charge rise-up ratio Z of 70% or more, which is calculated from formula (1):

$$Z(\%) = (Q20/Q600) \times 100 \quad (1)$$

wherein Q600 is a quantity of charge of said toner when said toner and a carrier are mixed and stirred for 10 minutes, with a concentration ratio of said toner in the mixture of said toner and said carrier being set at 5 wt.% or less at normal temperature and normal humidity, and Q20 is a quantity of charge of said toner when said toner is mixed with said carrier for 20 seconds under the same conditions as for said Q600.

12. The full-color image formation method as claimed in Claim 9, wherein said fluidity-imparting agent comprises hydrophobic silica particles and hydrophobic titanium oxide particles.

13. The full-color image formation method as claimed in Claim 9, wherein said fluidity-imparting agent has an average particle diameter of 0.05 μm or less.

14. The full-color image formation method as claimed

in Claim 9, wherein said fluidity-imparting agent comprises hydrophobic silica particles with an average particle diameter of 0.05 μm or less in an amount of 0.3 to 1.5 wt.%, and hydrophobic titanium oxide particles with an average particle diameter of 0.05 μm or less in an amount of 0.3 to 1.5 wt.%.

15. The full-color image formation method as claimed in Claim 9, wherein said toner has a volume mean diameter of 9 μm or less.

16. The full-color image formation method as claimed in Claim 15, wherein said toner comprises toner particles with a particle size of 5 μm or less in an amount of 20% or less in terms of the percentage of the number of said toner particles contained therein.

17. The full-color image formation method as claimed in Claim 9, wherein said intermediate image transfer member has a volume resistivity of 10^9 to 10^{13} $\Omega\cdot\text{cm}$ and a coefficient of surface friction of 0.4 or less.

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18. The full-color image formation method as claimed in Claim 9, wherein said toner image formed on said toner image bearing member is such a toner image that is formed by developing a latent electrostatic image formed on a photoconductor drum, using a reversal development method in which there is rotated a development unit comprising a plurality of development devices and magnetic brushes therefor.

19. The full-color image formation method as claimed in Claim 17, wherein said toner image formed on said toner image bearing member is such a toner image that is formed by developing a latent electrostatic image formed on a photoconductor drum, using a reversal development method in which there is rotated a development unit comprising a plurality of development devices and magnetic brushes therefor.

20. The full-color image formation method as claimed in Claim 18, wherein said toner is held in a rotary toner supply container free of any rotary agitator blade, and said rotary toner supply container is disposed in each of

said development devices.

21. The full-color image formation method as claimed in Claim 19, wherein said toner is held in a rotary toner supply container free of any rotary agitator blade, and said rotary toner supply container is disposed in each of said development devices.

22. A method of producing a toner for use in electrophotography, comprising the step of mixing a fluidity-imparting agent with a classified toner preparation material, using a rotary agitator blade mixer equipped with a rotary agitator blade, under the conditions which satisfy a formula:

$$50 \leq (V \cdot T) / M \leq 200$$

wherein V is a peripheral speed (m/sec) of said rotary agitator blade of said rotary agitator blade mixer, T is a stirring and mixing time (sec), and M is a weight (kg) of said toner to be stirred and mixed.

23. The method of producing the toner for use in electrophotography as claimed in Claim 22, wherein (1) said classified toner preparation material is obtained by

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subjecting a toner preparation material to secondary pulverizing, using a rotor type crusher comprising a fixed container serving as an external wall and a rotor having the same rotary shaft as that for said fixed container, (2) said toner preparation material subjected to said secondary pulverizing is classified, using a pneumatic conveying classifier which is connected to said rotor type crusher, and (3) said pulverized and classified toner preparation material is circulated through said rotor type crusher and said pneumatic conveying classifier.

24. The method of producing the toner for use in electrophotography as claimed in Claim 23, wherein said toner preparation material is subjected to primary pulverizing, using a jet crusher comprising a detector, and compressed air, prior to said secondary pulverizing.

25. An apparatus for producing a toner for use in electrophotography comprising:

a rotor type crusher comprising a fixed container serving as an external wall and a rotor having the same

rotary shaft as that for said fixed container, and
a pneumatic conveying classifier which is connected
to said rotor type crusher, through said rotor type
crusher and said pneumatic conveying classifier, a
classified toner preparation material being circulated.

26. A rotary toner supply container free of any
rotary agitator blade, in which there is held a toner
which comprises toner particles and a fluidity-imparting
agent, said toner particles having an average circularity
of 0.93 to 0.97, with a residue of said toner being in an
amount of 10 mg or less when 100 g of said toner is
sieved with a 500-mesh sieve, said toner being for use in
an electrophotographic image formation method using an
intermediate image transfer method which comprises (1) a
first image transfer step of transferring a toner image
formed on a toner image bearing member from said toner
image bearing member to an endless-shaped intermediate
image transfer member so as to form a toner image thereon,
and (2) a second image transfer step of transferring said
toner image from said intermediate image transfer member
to an image transfer material.

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B2 27. The rotary toner supply container as claimed in Claim 26, wherein said toner is one toner in a set of toners for use in a full-color electrophotography, which comprises at least a yellow toner, a magenta toner, and a cyan toner.

28. The rotary toner supply container as claimed in Claim 26, wherein said toner exhibits a charge rise-up ratio Z of 70% or more, which is calculated from formula (1):

$$Z(\%) = (Q20/Q600) \times 100 \quad (1)$$

wherein Q600 is a quantity of charge of said toner when said toner and a carrier are mixed and stirred for 10 minutes, with a concentration ratio of said toner in the mixture of said toner and said carrier being set at 5 wt.% or less at normal temperature and normal humidity, and Q20 is a quantity of charge of said toner when said toner is mixed with said carrier for 20 seconds under the same conditions as for said Q600.

29. The rotary toner supply container as claimed in Claim 26, wherein said fluidity-imparting agent comprises hydrophobic silica particles and hydrophobic titanium oxide particles.

30. The rotary toner supply container as claimed in Claim 26, wherein said fluidity-imparting agent has an average particle diameter of 0.05 μm or less.

31. The rotary toner supply container as claimed in Claim 26, wherein said fluidity-imparting agent comprises hydrophobic silica particles with an average particle diameter of 0.05 μm or less in an amount of 0.3 to 1.5 wt.%, and hydrophobic titanium oxide particles with an average particle diameter of 0.05 μm or less in an amount of 0.3 to 1.5 wt.%.

32. The rotary toner supply container as claimed in Claim 26, wherein said toner has a volume mean diameter of 9 μm or less.

33. The rotary toner supply container as claimed in Claim 32, wherein said toner comprises toner particles with a particle size of 5 μm or less in an amount of 20% or less in terms of the percentage of the number of said toner particles contained therein.